

Q U A N T A

THE NEWSLETTER OF THE INDEPENDENT QL USERS' GROUP

VOLUME 1 ISSUE 12

JANUARY 1985

CONTENTS

2. Information on the group
3. Editorial
4. Members' letters
13. Connecting Brother M1009 to Sinclair QL
14. 3-D plot
15. Assembly language example for GST 68K/OS
16. Simplex Data RAM expansion
16. Shinwa CP80 Type 1 printer
17. Mods to boot program
18. Mode, better code
20. Printer installation
20. Have you a video recorder
21. Connecting the Datac Panther printer
22. Towards better code
24. Networking
24. Installing a CPA 80(S) printer
26. Simplex Data RAM expansion - another view
27. Problem section
28. Beginners' section
31. Patch program for transferring the Metacomco editor onto disk
31. Abacus (1.02)
32. Review of CST floppy disk interface
33. London one-day workshop - disks on the QL
34. Simple saving of programs
34. Swindon workshop
34. A comparison of the 'QL Advanced User Guide' by Adrian Dickens and 'QL Assembly language Programming' by Colin Opie
35. Listing conventions
35. Review of Adder's editor/assembler
38. New librarian wanted
38. Z80 add-on plus disks
38. Metacomco linker
38. ZX Microfair

INFORMATION ON THE GROUP

Membership of IQLUG is by subscription to Quanta, the group's newsletter, which is published monthly. Membership details are obtainable from the secretary. Membership of the group is open to anyone with an interest in the Sinclair QL microcomputer.

Members requiring assistance with problems related to the QL may write to or 'phone the secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops will be arranged from time to time in various parts of the country.

The group maintains a software library. Most of the programs are free to members. A library list will be published from time to time. Programs are obtainable from the subscribers.

A list of members in any particular area is obtainable from the secretary.

Please send all contributions to the newsletter to the editor.

Chairman and
Newsletter Editor

Leon Heller,
8 Morris Walk,
Newport Pagnell
Bucks. MK 16 8QD.
Tel: (0908) 613004

Secretary and
Newsletter Publisher

Brian Pain,
24 Oxford Street,
Stony Stratford,
Milton Keynes. MK11 1JU.
Tel: (0908) 564271

Sinclair, QL, QDOS, QLUB and ZX Microdrive are trade marks of Sinclair Research Ltd.

Quill, Abacus, Archive and Easel are trade marks of Psion Ltd.

NOTES FOR CONTRIBUTORS TO QUANTA

Contributions should be printed on A4 paper, using a fresh ribbon. Do not fold the sheets, but keep them flat when posting.

Quill files on Microdrive cartridges (cartridges will be returned) are acceptable, as are handwritten articles.

Short programs can be included, but lengthy programs should be placed in the library, and a description sent in for the newsletter.

If you have received a reminder this is your LAST issue unless you renew your subscription

Have you renewed?

WORKSHOP CALENDAR

LONDON - JANUARY
SWINDON - MARCH WE
CAMBRIDGE - MARCH late
LIVERPOOL - APRIL early

Edinburgh - June
Leeds - Summer WE
North East - October
Swindon - November WE

EDITORIAL

In the rush to get the December issue out before Christmas, I forgot to wish you all a Merry Christmas and a Happy New Year. I now do it belatedly and retrospectively!

As you will see from my review in this issue, the QL now has disk drives, thanks to Cambridge Systems Technology (CST). The CST interface and suitable drives should be in the shops by the time you are reading this, and I think it would be well worth your while to upgrade to disk operation if at all possible. Disks really do transform the operation of the QL and turn it into a 'proper' computer, in my opinion. Several other companies are working on disk drives, and I would expect the price of the interface and a single drive to fall to under £200 before long. Even now, by shopping around, one could get a QL, monochrome monitor, printer and disk drive for under £1000, which, together with the bundled software, makes an extremely competitively-priced small business system.

Now I have disks, I've been able to test Archive and Quill properly (it took too long to build up large test files before, using Microdrives) and can confirm that Version 1 of these programs has some very serious problems, which make them unusable in my opinions at least for serious business use. I've sent my findings off to Sinclair and am awaiting their response.

I have also been having words with Sinclair over the fact that the Psion chess program has been available in retail outlets, whilst QLUB members were still waiting for their's to arrive. They referred me to the list of QLUB benefits which says that members may ORDER software before it is generally available, not that they will RECEIVE it any earlier than anyone else!

On a happier note, I have received a semi-official invitation from Sinclair to spend a day at Camberley. I'll see if I can get some reasons for the difficulties some members have experienced in their dealings with the people there, and pass on, some of your criticisms and complaints.

QLUB members have still only received two copies of QLUB News, in the nine months or so since QL deliveries started (I'm being charitable and including the first issue). They now have a professional journalist editing the thing, so there really is no excuse for the lack of subsequent issues. Copies of Quanta go to the editor, and I've told him that he is at liberty to use any of our materials provided he mentions IQLUG. Perhaps it might stir him into some activity if all IQLUG members who are also members of QLUB wrote him letters of complaint, comparing what you get from IQLUG for £12 with what QLUB offers for £35. How about it? He's based at Sinclair's Cambridge facility.

This is the 12th issue of Quanta, so we have been going for a whole year. Although the membership figures are still rather disappointing, you all seem very enthusiastic about IQLUG, and seem to like what we are doing, on the whole. Those of you who signed up for six month's membership should be getting renewal reminders with this issue. If you don't renew, for whatever reason, we'd appreciate it if you dropped us a line explaining why.

I am now busy organising the programme for the Swindon, workshop on 1/2/3 March. Do come if you can, if only for the AGM on the Sunday. Brian and I will be putting ourselves up for re-election. This does not preclude anyone else from standing, of course. Leon Heller.

MEMBERS' LETTERS

Very sorry to hear that some members have had problems with Computer One. I ordered FORTH by Barclaycard and received a note almost by return to say that they were having problems with Barclaycard (they are not alone in that - awful organisation) and could I send a cheque which I duly did. The goods arrived 6 days later but unfortunately the Microdrive would not load or clone - fault in the big machine code file. I am prepared to give CO the benefit of the doubt and believe that the cartridge was OK when it left Cambridge. The handbook seems adequate but why oh why cannot computer people write books comprehensible to the other professions. Most Users are just that, Users, neither Experts nor Hackers. Not for nothing is this the year of "Newspeak". Oscar Wilde must be forever revolving in his casket.

We are hoping to use QL Forth for instrument interfacing via the Serial Ports. SuperBASIC is not fast enough to read our Thurlby 1905a Multimeter at 9.6 kB (surprise!). I am not into Assembler but have found the Pennell book quite accessible, the only one on the subject I have yet been able to understand (other Drongos please note).

I am looking forward to getting the library programs if my extra cartridge order from Sinclair ever comes through (how come CO can now knock them out for £4.50 all in when casa Clive is still demanding £5 + p&p?), particularly the Tony Tebby ones and Jeremy's machine code "comets" package. Until I do get more cartridges you'll have to put up with paper letters from this quarter. I have written a SuperBASIC program to transfer files (at 300 Baud or 1200 just) from the QL to our University Mainframe (a steam reciprocating IBM360, due for the Breaker's Yard in 1985) whence I can print out on, inter alia, a Dec Laser Printer. However the OS of the mainframe (Michigan Terminal System) is so esoteric that it could not possibly be of use as a library program. Aside from mainframe transfer I can get program listings on one of the Department's Decwriter terminals and have a Silver-Reed EX43 typewriter and serial interface for "best". I have contemplated writing a driver program for our Hewlett-Packard HP7221 Plotter but surely someone in some software house somewhere is doing the same, so I have decided to wait and see.

The second QLUB newsletter was a bit better than the first, even had a clock program which worked (by the way is this the only multi-tasking application that people can think of), but Sinclair is still all promises, promises. Software is beginning to take off - there seem to be 4 or 5 Assemblers available now and Pascal even, all from Independents but what about Sinclair software? "Nothing yet but we're working on it!" When is the all machine code, no-overlay update of Quill coming out? How about a multi-tasked printer driver which prints out while you type the next bit of quill, without the need for a printer buffer? Ubi "C"? The list of unfulfilled promises is endless.

Besides the two 128k expansion modules at around £130 mentioned in your last newsletter I see from QL User (a very inferior comic, even if Leon does write for it) that an outfit called Sigma are offering a 256k expansion module for £198 all in - and you can daisy-chain 2 to make the elusive 0.5MB they say. My cynical view is to wait for the January Sales and anyway a disc drive has a prior call on my overdraft. Any of you Hackers out there working on IEEE 488?

Turning now to portable versions of the QL, I have contrived a "Mains Portable" with a Binatone 5" Mains/Battery TV. I was tempted by the Sinclair Flat TV but decided that one Sinclair product was enough for one year. All is housed in a strong nylon holdall with shoulder strap. How has your correspondent managed a battery version of the QL? According to the Power Unit one of the outputs is 15.6V AC; not impossible to get from dry batteries but not easy either - or will DC do just as well. Please elucidate!

With regard to reliability I think that I must be one of the lucky ones. My beast (a D09) is very well-behaved indeed. Most of the problems I have encountered are down to me or Psion, who have a lot to answer for. They had plenty of time to get the packaged software right. The current versions are just plain sloppy.

As a no-longer-practising Solicitor (Marine Lawyer until 1975), I do respectfully differ from our Barrister member about the prospects of getting a refund from Sinclair on the basis of QDOS being incomplete. Persistent mechanical failure possibly but otherwise, very difficult. The contra argument would be that as the technology is moving so rapidly and progress is made almost daily, a Computer Manufacturer would be placed in an impossible position if he had to ensure that the firmware could not be improved before releasing the machine. I have lots of sympathy for those who have issued writs but not much optimism.

J S Medhurst,
School of Marine Technology,
Dept. of Naval Architecture and Shipbuilding,
Armstrong Building,
The University,
Newcastle upon Tyne. NE1 7RU.

I have recently purchased the "alternative" GST 68K/0S operating system for the QL. It is interesting, powerful and clearly has considerable potential but it is also quite complex and difficult to learn. The documentation is thorough but not particularly friendly. There are virtually no illustrative examples. The assembler seems to be a fairly professional product, though it lacks a Macro facility, however the utility programs to support it are quite inadequate. There is a very good editor but no monitor or trace facilities. Not even a memory dump. Clearly quite a lot needs to be written before the system can be used as a going concern. I should like to get in touch with other members who have obtained this system in order (a) to compare notes on any problems encountered and on the best way to use the various facilities, and (b) to share general purpose routines and other programs of interest. I am prepared to set up and maintain an IQKOS library along the same lines as the IQLUB library if there is enough interest to warrant it. Meanwhile I would be happy' to chat with any other KOS owner on the telephone.

Norman Macleod,
Mount Pleasant,
Lea Bailey,
Ross-on-Wye HR9 5TY.
Tel:s 098 981 494

I would like to answer a few points mentioned in several letters regarding printers. There was one person who mentioned about the "#" and the "£" symbols. Most type faces in daisy wheel printers are in several versions. If the wheel is marked "WP", then usually it has no "£" sign. If the wheel is marked "ENGLAND" then the "#" symbol is replaced by the "£" sign. If the wheel is marked "BILINGUAL" then both symbols are present, and it is quite easy to use by using the TRANSLATE procedure in the INSTALL_BAS program. To find out which code to use the following simple printer program.

```
10 OPEN# 6,se r
20 FOR A = 31 TO 255
30 PRINT#5,A;
40 PRINT#5,CHR$(A)
50 NEXT A
```

A further point, it usually is not the printer which will not support underlining the spaces between words, in fact fault is with the "QUILL" program. However as one writer said this problem can be overcome by using "_" between each word.

John Shaw,
2 Brunswick Road,
Withington,
Manchester M20 9GA.

I have received the first 6 Quanta.

Congratulations. The QL is the sort of computer just waiting for you to appear!

I am a small-time businessman. So I echo what a couple of others have already said. Indeed, perhaps there are enough of us to merit a 'For Business Users' section', where 68008, compiler, assembly, bus signals do not appear!

The QL is my first computer and I bought it because it was cheap, accompanied by business software, it was potentially expandable and - most important of all - it could probably be re-sold when I had learnt what I really needed (if the QL did not deliver).

In effect it was something I could cut my teeth on at modest expense which - if its promise was fulfilled - could do what I want. In the process I would learn, relatively inexpensively, all the questions I should ask (and how to ask them!) and what my real needs were; hopefully, the QL would satisfy me but if it didn't, I was not lumbered.

But have I been lucky!! I bought mine at W.H.Smith's. Or shall I say, my first 3! The first 2 suffered from Microdrive failures : on neither would mdv1 Format a cartridge. (mdv2 Formatted every time and on any of the 4 cartridges supplied; mdv1 sometimes would do the job on 2 of the 4. On QL number 2, mdv1 made noticeable clanking and clicking sounds when used.) So I went into W.H.Smith's and demonstrated. Immediate, no-quibble exchange for a new one. (I also wrote to Sinclair to alert them to a possible mechanical batch problem on their mdv1 supply. I got back a typed mindless reply. Do they think a typed (word processed?) reply is good customer relations, on its own?)

Moral number 1 — deal with W.H.Smith's for hardware, not 'Sinclair.

After one week, then, I had a working QL and poor TV display quality. So I got a monochrome monitor - a Hantarex, the best of 12 in competitive tests in a magazine. It gives a good clear green image. But there was no cable supplied with the QL for a monitor, so I had to buy one made up by the shop which sold the Hantarex.

Moral number 2 — do not look to Sinclair for help in connecting up a monitor. (Phoning Sinclair did bring the response "Yes we have one. Just let me have your Access number and we will deliver in 28 days." 28 what!! We've heard that before. And I just pity the poor telephone girls.) I suppose that Sinclair expect businesses to use TV sets and so supply cable for these we've grown so used to Sinclair's lack of marketing integrity that perhaps I should not be surprised at their lack of marketing intelligence. Who would sell a tractor for farmers without fittings to take implements? Or who would try to sell a car 'just right for your caravan' which had no hook-up? Who? Need you ask? I just hope they don't get into these markets!

Another week later, we got our printer. We want letter quality output and, on the recommendation of an acquaintance, I got a Juki 6100 with tractor feed (extra) and fitted with a serial port. (The serial port needs 2400 baud. It is a bit more expensive than buying the Miracle Interface, but you do not have yet another 'dongle' hanging out. By the way, if you do have the 'serial' Juki option, the parallel port still remains in place, but you can no longer use it without an engineer reconnecting it up internally. A pity!)

But we still had no cable. Nor had the shops. And '28 day' Sinclair was a decided turn-off. Then the bright W.H.Smith's Assistant Manager made his suggestion: "Why not drive over to Sinclair and pick one up. I don't like you doing it, but you could be lucky." So I drove over to Sinclair and picked one up from their over-worked telephonist, and very happy they were too, supplying me within a few minutes. (But note their new, new address: Albany Park, Frimley.)

Moral number 3 — you can, after all, get action from Sinclair. Finally in the third week we had our first job running: multiple label production for our deliveries, working from a 100-line menu-led program which my 12-year old son insisted he write himself. (We did look at QUILL - but the cartridge would not load its program, so into good "ole Smith's for a Format and Copy.)

Results - Excellent. Improvements? We are now using multi-strike ribbon - the single-strike smeared, although it does give slightly crisper and darker letters. We are going to increase the Juki's buffer from its present standard 2K to its maximum of 8K (which will cover 99% of present hold-ups). For example, an order for 16 items needs the output of 16 labels (No 1 of 16, No 2 of 16, No 16 of 16). But all of this is too big to hold in its entirety in the Juki's buffer. It seems that as much as possible is loaded, and the QL holds the remainder until the Juki is ready to take it in. Only at that moment will the QL allow any more menu-led information to be entered. But even now, we are saving 7 hours weekly.

The next job? To get ARCHIVE up and running for us to handle our customer records. But this will have to wait for my 12-year old's next holidays! I have only got as far as half-way through the (nicely written if errata strewn) Beginner's Guide. This is one guide at least which does not make one feel that page 1 being followed so closely by page 2, here is a subject of which one will forever remain ignorant.

Anyone need a QL Centronics Interface by Miracle? Bought before the Juki, and before I found the serial port could be obtained on it. Pristine -- R34.

E. Palfrey,
Coxboro' Cottage,
Cookham,
Berks.

I just wrote a little program for the SPECTRUM in connection with the QL. It uses the network ability of the QL and does simply use the SPECTRUM as spooler.

The program has been tested with another SPECTRUM and it works.

It offers a buffer of about 40 K Bytes. In the interest of speeding up the program there is no test for free memory, so it could overflow when more than 40 K was needed. (Who needs more?)

In addition the program offers an easy way to change some tokens according to your printer

Thus you have less problems with Interfacing and a comfortable way to remove QL's odd #0A.

The advantage of this program compared with others is simply that it does "at the same time" control network and RS 232. The other programs that I've seen do first input from network and then start printing. Once you've started printing there is no way back to input any byte. I would be glad, if some other members with experience in 68008 assembler could manage to write the correspondent QL-routine if possible with some comments, on how it works.

I send you a complete copy of the assembly in reduced size so you can just copy it for the QUANTA if you are interested in publishing it.

I enclose a tape with the complete program for the SPECTRUM. Might be it could be useful for the library. The tape has the inbuilt facility to transfer the program on cartridge. In Basic you must set the baud-rate (set to 600) -the higher the better.

Wolfgang Goller,
Rosenstr.21,
CH 8105 Regensdorf . 22. 11. 84
S W I T Z E R L A N D.

/* Wolfgang's program was in the last issue. */

As Qlub news seems to be the ripoff of the decade, I enclose a rather belated renewal of my subscription to IQLUG.

Is any news available about the promised software upgrades? I spoke to a Psion representative at the PCW show about the many shortcomings of Abacus. He said "When I tried it I concluded that it didn't work, but the "Xchange" version is much improved". He also showed me a program called TSL which seemed to overcome the lack of a "Command file" facility. Does anyone know if TSL will come with the promised upgrades?

I'd also be interested to know whether the problem that I have with unwanted repetition of characters is a common problem.

This letter was typed on a Canon PW1080A matrix printer which I can obtain with a QL interface at a very attractive price if any members are interested.

Douglas Hopwood,
3 Coombe Drive,
Addlestone,
Weybridge,
Surrey. KT15 1DB

I am much in favour of beginners items in Quanta - the more the better. However, the alleged problem in the Beginners Section of the Dec 1984 issue, can be solved in a few minutes on the back of an envelope. Beginners should NOT be encouraged to turn to a computer as a means of exhaustive search for solutions, when schoolboy algebra and a modicum of deduction will give the direct answer without need for a line of program. When somebody acquires their first sledgehammer, we should not train them to crack nuts with it.

To those who want good programming exercises, I would recommend the Computers column in the "Observer" colour supplement every Sunday. (Or you can probably borrow back numbers from your barber shop or dentist's waiting room.) Some of the problems set are quite easy, others need more thinking about. They are chosen to illustrate points of real importance in computer applications, and the suggested answers (for which you have to wait only a week of course) demonstrate good programming technique in a very simple form of Basic.

John Gale,
16 Wrensfield,
Hemel Hempstead,
Herts. HP1 1RN.

/* I don't agree with John over this. Surely problems of the type he objects to can be approached on two levels - using 'brute force and ignorance' or by attempting to simulate the way a human being solves such a problem. A beginner will surely learn quite a lot even if an exhaustive search technique is used. Solving even simple problems by the simulation of human problem-solving methods is extremely difficult. What do other members think? */

Thank-you for the November Issue of "Quanta" and for keeping up the standard so well.

Since I wrote to you before, I have had the QL ROM changed to version JM, and am happy to say that the Spectrum Microdrives still work as well as they did with the "dongle". The dkTronics Microdrive cable, being longer than the Sinclair one, makes their use more convenient (one can have the slots at the front now), and available to people who don't have Spectrums.

My Mannesmann Tally Spirit-80 printer works very well with the bundled QL software, which firmly believes it is really an Epson FX-80. Easel gives really good screen dumps, although using the Easel screen dump program "GPRINT_PRT" away from Easel gives a negative print-out (as pointed out by Adrian Kitteridge). The solution to this is to use the RECOL instruction before dumping the screen; the only important numbers are the last two, which reverse black and white - the others are a matter of taste: -

```
RECOL 1,2,3,4,5,6,0,7
```

This will make your screen look very odd, but the same instruction after the dump will restore the status quo.

Several people have pointed out the difficulties in using "MERGE" from a procedure. Although the error message "Not Implemented" will appear, manually entering "retry" will cause the MERGE to be done; QDOS will then fail to find the end of the procedure, and the "Not Found at line xxxx (the line with END DEFine)" message will appear. This will often not matter, and if you do this a lot, "retry" will work from a procedure:-

```
DEFine PROCEDURE r  
  RETRY  
END DEFine r
```

so that you only need to enter "r".

Whilst still on the peculiarities of QDOS, I have been unsuccessful in using the "WHEN ERROR" function. It needs an "END WHEN" after it, but refuses to accept anything sensible like "WHEN ERROR=16" or to actually do anything, although the keywords shown are reserved.

Another "funny" is the "pipe" device name. The instructions:-

```
OPEN_NEW£5, pipe_1000  
DIR£5,mdv1_
```

seem to write the directory of mdv1_ into a 1000-bit long pipe, but whether or not I CLOSE£5 first, I can't open the pipe as an input device to get the directory out again. We seem to have a facility I have been advocating for years, the WOM (Write-Only Memory). Can anyone provide solutions to these two 'funnies'?

If you have no other volunteers in the area, I am prepared to act as local representative/sub-librarian for IQLUG in the Channel Islands or at least in Jersey.

Colin Wilton-Davies,

Hilltop,

St. Mary,

Channel Islands.

/* PIPEs are accessible using machine language.

They are available with the QLkit. */

Thank you for 'Quanta' issues 7 to 9 which I find quite interesting but must agree with the comments of poor print quality. A more 'professional' look would no doubt help with membership figures.

It isn't surprising that the majority of members' letters contain complaints about the QL but surely it's time to get down to 'making the most of the micro'.

I received my, 'JM' version early August and have to say that I've come to grips with the quirks and idiosyncrasies which came with the QL. The Pision software has never failed to load first time. The Microdrives are slow at times and do put limitations on Quill, Archive and Abacus but apart from in the early stages I have not lost any data from the drives and where I feel it necessary do make backup copies. On Quill, especially, the screen display can be slow but I can't type 'many' characters ahead as some others suggest. Easel is quite superb and the screen dumps to my Shinwa CP80 are beyond all expectations. Large databases on Archive are held back by the Microdrives but this is more than offset by the sheer power of programmable procedures etc.

This may well be the age of the consumer but can we reasonably expect more for £399? This is by no means a 'computer for all men' but for the money it suits me... Surely I'm not the only satisfied customer this micro has managed to produce.

There is a very bright future on the horizon for the QL and the sooner we all get down to improving the facilities of this computer with the tools we have (and they are many) the better it will be for us all.

Some members may be interested to know that I have a green screen monitor distributed by 4 systems of London and made by digivision. It works superbly well. Cost £119.

After a very lengthy search I managed to find a serial (RS232) interface for my Shinwa CP80 printer. Sold by Keyaki of London for £ 34.00 plus vat.

Any news about the forthcoming modem from Sinclair? Thanks.

Kevin Sime
19 Oberon Close,
Arden Park,
Nuneaton. CV11 6NT.

I am a student of geology in my Honours year at Edinburgh University, and bought the QL to help in the writing of my thesis. I am a non-technical user, although not first-time having clocked up 500 pages on an Apple. (did you know the Apple can't even type its own logo direct from the Keyboard?) and Apple Writer 1, and do not have time to go delving around the innards of this thing, trying stuff out (although I have typed in all the programs I've found in IQLUG [why does Rob Sherratt's big program return "at line 1760 not complete"?] And love the clock program, although it spills its display off the screen when booting on F2. Right now I want to know how to "repair" Quill files.

I want the first three pages of my thesis back! Yes, the backup went too. Importing will bring in the first 600 or so words, but only display the first screen full and Quill is locked up, responding only to reset. Also files stored as "name_one" don't have the "_doc" extension added, and will not reload.

Fred Hollis,
11 London Street,
Edinburgh. EH3 6LZ.

Please let me help avoid headaches all round when using MT_DMODE (TRAP #1,D0=\$10) When using this trap with D2.B=-1, it only seems to return the correct display mode (0:monitor, 1:TV) when first called, just after a RESET. If this is not so, the trap invariably returns 0,1 or 3 regardless.

Also. my 'AH' QL seems to please itself whether it releases resident procedure area, or not. With the QL in the same state (i.e. transient program area empty), MT.RERES (TRAP #1, D0=\$F.) will release space once (for me) but try to reserve space again & then release it - no go.

Currently I am working on a hybrid program utilising sprites, and it is here that I came across a more serious bug in the QL. Everything was running smoothly and the machine code subroutines were faultless. But, as soon as I DIMensioned a string array of 84,54 elements (DIM sc\$(84,54,2)) then called a M/C routine again, the QL crashed - requiring a RESET. I loaded the program again to find out the available memory after the array was Initialised 30K, checked the M/C routines before and after the array initialisation, no change. I tried a different array (DIM p\$(10000,2) - still crashed. The only size that was accepted was a string array of 24,24. The solution is to use a RESPR(size) array. POKEing values to the memory block rather than a large string array when using M/C routines.

On a different note, somebody wrote to Popular Computing Weekly complaining that when he defined a fixed length string of an odd number of characters, say 7 or 9, it was rounded up to an even number (8 or 10) - this is not a bug. When word size data is accessed in 68000 machine code it must start at an even address. Therefore it is good practice to store data in groups of even bytes (or words) so as not to leave any possibility of upsetting this balance. So, when you define a string with, say 7 characters (DIM word\$(7), the QL gives you an extra character rather than waste it.

Also, somebody wrote saying there was a bug in the RENUM command. When a program: '10 GOTO 20' was renumbered it resulted in '10 GOTO 32767' this is just because there is no such line as 20 and so the QL tries to renumber the 20 to the next, line. As there isn't any other lines, the QL sets it to the maximum line number (which should at least draw attention to it) . Similarly for jumps to lines behind the present line (minimum line number). This is a kind of intelligent line renumbering (what sort of programmer writes GOTOS to nonexistent lines) and I should think the person who wrote the routine is quite upset to see someone dam the QL calling this RENUMbering feature a bug.

Richard Snowdon,
6 Bousfield Crescent,
Newton Aycliffe,
Co. Durham.
DL5 4HZ.

Wil Jackson, in a recent issue, complained about 4 Systems advertising goods and not delivering. My experience is different: I ordered a Brother printer and Digivision monitor from them a few weeks ago BUT telephoned first to check on availability and delivery. Although there was a delay in delivering the monitor, both pieces arrived within 24 hours of the day advised. So, TELEPHONE FIRST, then place your order!

Andrew Risby.

CONNECTING BROTHER M1009 TO SINCLAIR Q.L.

There seems to have been some correspondence in computer magazines recently concerning linking up the Q.L. to serial printers. I have recently gone through this process and so have written to Personal Computer News with my findings. I thought that it may be useful for IQLUG to have a copy also as PCN may not publish them.

Here then is the text of the letter, it may be useful to someone:-

Dear Sir,

The letters in the 8th December issue of P.C.N. about connecting printers to the Q.L. show up, among other things, the lamentable state of documentation which accompanies most computer products. I have just managed to get Brother's excellent little M-1009 printer working with my Q.L., but it was a constant struggle against incomplete, and sometimes wrong, information. Anyway, here, in the hope that it will save others days of anguish and gnashing of teeth. is what I've discovered.

First the cable. Connect the pins as follows and use SER 1 on the Q.L. :-

Q.L.		PRINTER
1	GROUND	7
2	TXD	2
3	RXD	3
4	Busy	20
5	CTS (not used)	5
6	+12V	6

No other connections are needed. The vital piece of information missing from the Q.L. handbook is that the numbering of the serial port pins starts at the end opposite the locking lever.

Now on to the DIP switches. I've set them up as follows:-

- Switch 1
 - 1. OFF ; Busy polarity low
 - 2. OFF ; x-No transmit(whatever that means)
 - 3. ON ;
 - 4. ON ; Baud rate 9600
 - 5. ON ;
 - 6. ON ; Parity ODD
 - 7. OFF ; 8 bit word
 - 8. OFF ; Serial input

- Switch 2
 - 1. ON ; Form length 11"
 - 2. ON ;
 - 3. OFF ; English character set
 - 4. OFF ; Selects 0
 - 5. OFF ; Disables skip perforations
 - 6. ON ; Not used apparently
 - 7.OFF ; Auto line feed
 - 8. ON ; SLCT IN (don't understand this either)

A word of warning- there are mistakes in the baud rate table of the amended Sheets for the printer. The ones in the original book are correct. Also, no-one

tells you that it is necessary to stitch off the printer and then on again after changing the DIP switches, otherwise the changes will not come into effect. I wasted a whole afternoon because I didn't know this.

You should now be able to print using the default printer driver, in Quill, and get programme listings by typing:-

```
OPEN #3,SER1 [ENTER]
then: - LIST#3 [ENTER ]
```

the only problem being that the "hash" and "pound" signs don't come out properly. I can't see a way round this at present.

Finally, if you want to make use of facilities such as underline or bold type in Quill you will have to modify the printer driver on the Quill Microdrive. This is quite simple as you are provided with a special programme for the purpose, with data for the FX-80 as one of the options. This is compatible with the M-1009.

Run the programme "install __bas" on the Quill tape, select FX-80 and Edit on the menu and you will see the relevant parameters. One problem I have found with the M-1009 concerns the preamble code, the string of control characters sent to the printer before the text starts. It sends out ESC.@ to initialise the printer, followed by ESC.R.3 to select English character set. Unfortunately while the printer is initialising. it misses the following escape code and so prints "R3" on the paper. To get over this you can remove part or all of the preamble, or put a "0" (i.e.NULL) between the two instructions. I don't have a need for subscript, so I have changed the on and off codes for this to give me italic type. You can also do this at this stage if you want to. Finally press F5 and [ENTER] to install the correct data on the tape.

To get back to my original moan about incomplete or misleading information, I really believe manufacturers should take more care over their handbooks. They are as important as the hardware and should be tested by end users before going into print. Getting someone to actually make up a lead, or set up a printer is the only way to check that all the information is there.

Stephen Horn,
11/12 Boat Green,
Canonmills,
Edinburgh.
EH13 5 LN.

3-D PLOT

```
1 PAPER 0: CLS: INK 7
2 PRINT,"Input any two numbers" : PRINT:PRINT
3 INPUT,"Input Number 1 ":c
4 INPUT "Input Number 2 ":d
5 CLS
10 POINT 80,50
20 FOR n = 0 to 360
30 LET n1 = n*PI/180
40 LET a = 50*SIN(n1)*SIN(n1*c)
45 LET b = 50*COS(n1)*SIN(n1*d)
50 LET n2 = 80+a: LET y = 50+b
60 POINT n2,y
70 NEXT n
```

Sean Barnard, Jeddah,

If you have received a reminder this is your **LAST** issue unless you renew your subscription

ASSEMBLY LANGUAGE EXAMPLE FOR GST 68K/OS

Having had a certain amount of difficulty getting an assembly language program working on this system, I offer a simple example which may help others to get going.

RUNPROG EDITPROG (This starts the editor)

Name of file to edit? TEST.ASM ENTER (creates the file TEST. ASM)

(Now key in the following assembly language program)

```

                TITLE      TEST PROGRAM TO WRITE A LINE TO THE
                SCREEN
*
                HEADER BLOCK OF 32 BYTES

                DC.L 0      ENTRY POINT
                DC.W 2      MINIMUM RAM ALLOCATION
                DS.W 13

                INCLUDE 68KOS.IN      68K/OS PARAMETERS

                SECTION 0
                LEA SCR,A0           ADDRESS OF 'SCREEN:'
                MOVEQ £2,D3           SET OPT BIT FOR WRITE
                MOVEQ £IOOPEN,D0     OPEN CHANNEL TO SCREEN:
                JSR IOENTRY           CHANNEL NO RETURNED IN D1
                LEA MESSAGE,A0       ADDRESS OF MESSAGE BUFFER
                MOVE.W D1,D3          CHANNEL NO
                MOVE.W (A0)+,D1       LENGTH OF STRING
                MOVEQ £IOPUTSEQ,D0    PRINT MESSAGE ON SCREEN
                JSR IOENTRY
                MOVEQ £127,D1
                MOVEQ £OSDELAY,D0     SHORT DELAY
                JSR OENTRY
                MOVEQ £IOCLOSE,D0     CLOSE SCREEN: CHANNEL
                JSR IOENTRY
                RTS

                SCRDC.W 7
                DC.W 'SCREEN:'

                MESSAGE DC.W 41      CHARACTER COUNT
                DC.W 'That's all there is, there isn't any more'
                END
```

F2 S

RUNPROG ASM.PROG

Please type your command line:
TEST.ASM ENTER

(The assembler puts out a listing file on TEST. LIST and a binary file on TEST.BIN

Another ENTER gets out of the assembly program and the TEST program can now be executed.)

RUNPROG TEST.BIN

(A message is displayed on the screen for a few seconds.)

Norman Macleod,
Mount Pleasant,
Lea Bailey,
Ross-on-Wye HR9 5TY.

/* Norman has offered to organise a 68K/OS software library. */

SIMPLEX DATA RAM EXPANSION

FOR ANYONE CONSIDERING BUYING SOME EXPANSION MEMORY, I CAN HIGHLY RECOMMEND THE MEMORY EXPANSION BOARDS BEING SOLD BY SIMPLEX DATA. THEY OFFER TWO VERSIONS, 256K AT £198 AND 512K AT £396. THESE MEMORY BOARDS USE STATE OF THE ART 256KX1 DYNAMIC RAM IC'S THAT ARE JUST BECOMING AVAILABLE. THIS MAKES A VERY COMPACT UNIT THAT FITS INTO THE EXPANSION PORT ON THE LEFT HAND SIDE OF THE QL KEYBOARD. WHEN FITTED, IT PROTRUDES ONLY 5mm FROM THIS EXPANSION PORT AND IS NOT VISIBLE WHEN OPERATING THE KEYBOARD. THE PRINTED CIRCUIT BOARD IS THE SAME FOR BOTH THE MODELS OFFERED, THE 256K HAVING ONLY HALF THE POSSIBLE RAM IC'S FITTED. TO ANYONE CONSIDERING SUCH A PURCHASE, I WOULD PERSONALLY RECOMMEND THE 256K VERSION AS IT WOULD BE POSSIBLE TO ADD THE OTHER 256K IC'S AT A LATER DATE, i.e. WHEN THE PRICE OF THE RAM IC'S FALL WHEN THEY BECOME MORE GENERALLY AVAILABLE (AS THEY SURELY WILL). SIMPLEX DATA SUPPLIED THE MEMORY BOARD WELL WITHIN THE 28-38 DAYS QUOTED WHEN I PLACED MY ORDER. THE BOARD WAS SENT VERY WELL PACKED BY REGISTERED POST. THE ONLY THING MISSING IS THE LACK OF INSTRUCTIONS. HOWEVER, YOU SIMPLY REMOVE THE COVER OVER THE EXPANSION PORT AND CAREFULLY PLUG IN THE MEMORY BOARD. IT'S AS SIMPLE AS THAT. THE EXTRA MEMORY PROVIDES MUCH SCOPE FOR IMPROVEMENT IN THE OPERATION OF THE PSION BUNDLED (BUNGLED?) SOFTWARE AS SUPPLIED WITH THE QL, AS ACCESS TO THE MICRODRIVES IS GREATLY REDUCED, THE MICRODRIVE FILES BEING DUPLICATED IN THE EXTRA MEMORY.

SIMPLEX DATA CAN BE REACHED AT 432, GREENFORD ROAD, GREENFORD, MIDDLESEX. UB6 8SG. TELEPHONE 01-575-7581

BEST WISHES FOR THE NEW YEAR TO EVERYONE.

M. J. PEARCE,
21 HALL MEADOW,
WEDGES MILLS,
CANNOCK,
STAFFS.
MS11 1TB.

SHINWA CP80. type 1 printer

Many thanks for sending me the various newsletters and particularly the article about setting up the above printer. Everything worked perfectly but I then became greedy and decided to try and use the other facilities of this printer such as the italic character set.

To get at these I needed to be able to send an "Escape" code to the printer i.e. ASKEY CODE 27. To do this I used the translate option on the install_bas program and to change the copyright symbol (Code 127) to ESC (Code 27). This enables us to use the Italic character set by inserting the copyright symbol in the text followed by the required character representing the control code.

The amendments required for the 'translations' are '127,27,'.

I hope the above makes sense and will be useful to others in utilising all the features of their printers.

J.R. Catt,
6, St. Annes Close, Badger Farm,
Winchester,
Hants. S022 4LQ

MODS TO BOOT PROGRAM

With reference to the BCOT2_BAS program available from Library No 1 (with REM statements of: BASED ON ROB SHERRATT MASTERPIECE. QUANTA VOL 1 NO 6: in the first few lines).

I have made some modifications that should be of help to others using this as a BOOT program.

DELETE Line 330 IF i=0 THEN NEW

Line 170, the DIM statement should be increased to read:

170 DIM fil\$(100,20)

The first file in the directory is not shown unless you change line 260 to read

260 IF n >= 2 THEN etc....

and insert these additional lines:

165 WINDOW 448,220,32,16 : BORDER 5,5 : CLS

166 WINDOW #0,248,20,132,200.

L A Privett,
16 Sandringham Road,
Upney,
Barking,
Essex IG11 9AB.

If you have received a reminder this is your LAST issue unless you renew your subscription

More, Better Code

Not being able to resist poking about with other peoples code, I naturally looked at some other files on the library cartridges, `xdir_bas` is a very nice and useful program. It displays how many cartridge sectors each file uses. My immediate disappointment was that it did not provide hard copy, so I made it more friendly and added hard copy. It was too clever for me to criticise in any other respect. I tried `files_bas`. Now there's a program which could drive me up the wall. No REMarks. No entry point. Every procedure I tried quickly fetched up with an error message. Several of them were obviously due to incompatible screen formats but although I used Monitor default, TV default and IQLUG Standard Screen it would not accept any of them. I took a listing, yes all eight pages of it. Now there's the living proof that we need more compact code: There is doubtless a touch of genius in Mr Lawlors code but without the explanations I vote it worse than useless. Sorry, but it did waste a lot of time and paper to no avail.

Turning now to something much simpler, I spied `easter_bas`. 59 lines of code, 4 blocks on cartridge and it finds that easter 1985 is on March 38! It looked like a good case for the treatment. It again had no author credit but having also had a look at Darren Jones `star_bas` it looked to be from the same author (and I suspect Calander_bas was also from the same source). Anyway, it contained no less than twelve GO TO's and not the slightest concession to SuperBASIC. The GO TO's it used would be hard to justify in even the most crude form of Basic. And as the Manual says, it's now a redundant keyword. The method of calculation used in the program I assumed to be correct since I had no better information to check it from and I made a guess at the fix necessary to eliminate the 38 March date and it seemed to come right. So then I concentrated on getting the flow of logic and the resulting code follows. If you have the original I recommend that you compare it carefully. It should certainly clarify the use of the MOD function. You will note the :RESET procedure, which is functionally the same as `reset_bas` also on library two, but cleaned up to make it more compact. This produces the IQLUG Standard Screen and is used in the original program but was not maintained as a separate procedure which made the program less readable. The easter program in it's new form, has 42 lines, uses 3 sectors and is far easier to read, I suggest. It could be further reduced by two lines if the 'progloop' were omitted in favour of a RUN instruction at line 360 but I know that some of the better educated programmers eschew the use of a RUN command in a program. Although I have not discovered the reason.

Incidentally, be careful with instructions like RUN 1000 or LIST 130 to 1300 because the RENUM function does not operate on the line numbers used.

I also attach a procedure for formatting numbers. I appreciate that such procedures turn up rather frequently but one usually finds that they are designed to cope with a limited range of formats. The form given here will, I believe, cope with any level of precision and any form of number input. A positive precision means the number of places after the decimal point, zero precision becomes an integer, of course, and negative precision brings the decimal point left by the specified number as used in those balance sheets where the figures are given in £1000's. I would be pleased to hear if anyone finds a bug in it or is able to improve it, especially if it can be made more compact: Its only failing that I am aware of is that the accuracy of the output form suffers due to the poor definition of reals in SuperBASIC.

I am sure there are many readers who will disagree with some of the practices I commend so let's be hearing from you and start the debate!

```
100 REMark *** Easter Program *** by Darren Jones perhaps
110 REMark ***( modified Sinclair SuperBASIC by john tanner.
120 :
130 REPEAT progloop
140 RESET: REMark IQLUG standard screen
150 CSIZE£2,2,1:PRINT£2,TO 15,"EASTER":CSIZE£2,0,0
160 PRINT£2,\'This program, when given a year,\'
170 PRINT £2,\'finds the date on which Easter will fall.\'
180 INPUT £2,\'Input the year \'j:IF j<100:j=j+1900
190 PAPER£2,2:AT£2,10,20:PRINT£2,\'Easter falls on \';
200 a=j MOD 19:b=j MOD 4:c=j MOD 7:t=19*a+24
210 d=t MOD 30:t=2*b+4*c+6*d+5:e=t MOD 7:f=d+e-9
220 IF f< 1
230 PRINT£2, f+31! 'March' ! j
240 ELSE
250 SELEct ON f
260 =26:PRINT£2,\'19 April\'!j
270 =REMAINDER
280 IF j =25 AND d=28
290 PRINT£2,\'18 April\'! j
300 ELSE :PRINT£2,f!\'April\'!j
310 END I F
320 END SELEct
330 END iF
340 PRINT £1, "Another year?"\'\'(Y=YES, space bar to end)"
350 REPEAT getkey
360 IN$=INKEY$(-1) : IF IN$==\'y\' :EXIT getkey
370 IF IN$=" ":LRUN mdv1_boot
380 END REPEAT getkey
390 END REPEAT progloop
400 :
410 DEFine PROCedure RESET
420 FOR j=0 TO 2:PAPER£j,(2*(j=1)):INK£j,7:CSIZE£j,0,0
430 WINDOW£0,512,256,0,0:MODE 512:CLS£0
440 WINDOW£2,454, 184,32,10
450 WINDOW£1,218,184,268,10
460 WINDOW£0,454,50,32,200
470 BORDER£0,1,2
480 END DEF1.:e RESET
490 :
500 DEFine PROCedure RESAVE
510 a$=mdv1_easter2_bas$:DELETE a$:SAVE a$

100 CLS£2
110 REPEAT demonstrate_numform
120 INPUT£0,\' number\' !n
130 INPUT£0,\'precision\' !p
140 INPUT£0,\'string length\' ! L
150 NUMFORM a, p,l: PRINT£2, n$
160 END REPEAT demonstrate_numform
170 :
180 DEFine PROCedure NUMFORM(n,p,l)
190 REMark nUMBER, pREC ISION , lENgTH
200 LOCAL a,b,c,e :a=n*10^p+0.5
210 IF a<IE8 AND a>IE8:a=INT(a)
220 b=ABS(a):n$=b:e="e" INSTR n$
230 IF e:c=n$(e+1 TO):n$=n$(l TO e-l)&FILL$("0",c-e+2+(e>2))
240 e=.' INSTR n$:IF e:n$=n$(l TO l)&n$(3 TO
250 e=LEN(nS):c=e-p
260 IF c<l:c=l-c:n$=FILL$("0",c)&n$:e=p+l:c=l
270 IF p>0:n$=n$(l TO c)&,"."&n$(c+l TO e)
280 IF a-b:n$="."&n$:c=c+l
290 IF l>c:n$=FILL$(" ",l-c)&n$
300 END DEFine NUMFORM
```

Printer installation.

I have recently purchased a Brother M1009 printer, and an excellent little machine it is too. Needless to say, I read all the material I could find on setting-up procedures. It seems to me that a lot of the advice on offer is less than helpful in getting the best results from the latest models.

Few people seem to understand that the D.I.P. switches selecting the character set only select the default setting, or at any rate, where this is understood, the implications are not.

I imagine that most of us use our printers frequently to produce hard copy listings of our programmes. For this the hash (#) should be available. That implies that the American character set should be selected by the D.I.P. switches. Then a simple direct command - Open #3,ser:List #3 - is all that's required. (No need to quote Baud - Q.L. default is 9600).

But we do need the pound (£) for other things, so the driver in Quill must take care of that. But please. DON'T follow the advice of Psion in the manual. This is to call the English character set by use of the preamble code. But you've now lost the hash which you still may need - for editing Basic for instance. No, the best way is to call the English set only when you press the key with the £ on it. Here's how. Under Translate 1 in the driver insert (for the 1009) £,<esc>,R, <etx>,#,<esc>,R,<nul>. I believe these codes are becoming pretty standard on the latest printers so it may work without amendment on yours.

On the subject of Driver programmes, it is a great pity that Psion did not provide an F4 U(ser) function which would enable the insertion into a document of control codes not catered for in the driver. So many functions available in the printer just can't be accessed. For example a writer wishing to quote foreign words can't change the character set at will. One would, of course, have to keep track of what had been entered and the screen might show some very strange symbolism. But that would be a small price to pay for getting the print-out correct. Here's a small example of what could be done. "I entered the" (call up French)"cafe" (recall American) and that will print as "I entered the café."

One final little known fact. The K-series M1009 printers have a fifth character set - Spanish. As far as I've been able to ascertain this set is hard-wired, and is selected by the (according to the manual) undefined D.I.P switch 2.6. If this is on you're stuck with P. however hard you try to get a £ or a #. Even the "Brothers" at Manchester don't seem to know this - at least when I phoned they said "send it back, it must have the wrong R.O.M."

Capt.E.D.Fieldson,
Miraflores,
Troutstream Way,
Loudwater,
Rickmansworth,
Herts.WD3 4LA.

Have You A Video Recorder?

Over Xmas it was quite good fun to show some graphic programs on the normal TV, using QL programs recorded on a video recorder. A good choice is the library program ' PATTERN_BAS' . With apologies to its author G R Taylor, I removed the captions underneath, and put HAPPY CHRISTMAS, and the names of the children present, then again, "PANIC!" is short, simple but very diverting. I changed this by having 5 messages, each associated with a child's name, and using in a new random variable 'x' so that each message was selected if x was between chosen limits.

Connecting the QL to the video recorder is simply a question of replacing the aerial coax by the UHF lead from the QL. Then one allocates a video recorder channel to the QL, and tune it in to the QL 'carrier frequency'. At first I was unlucky since although the picture was present, it was covered with unpleasant interference fringes, and I realised that the video recorder UHF frequency must by chance have been very

close to that of the QL. It did not occur to me for a day that provision is made to change the carrier frequency of the video recorder: when I had shifted it a little distance, I then had a perfect picture - at any rate as good as a UHF picture can be. My video recorder is a Betamax Sanyo VTC 5150.

Tuning the channel is not critical and one gets a good picture in full colour. But unfortunately, when this picture is played back, it is often in black and white! It is necessary to re-tune in a hit-and-miss fashion until one gets a good recorded programme in colour. It would obviously be much better if one could record the QL RGB signal since no critical tuning would then be necessary. But how does one transfer the signal in video (as opposed to UHF) from the QL to the video recorder? This should certainly increase the picture quality considerably. Presumably one needs a composite video signal from the QL.

Bill Cowhig, 21 Priory Road, SALE. M33 2BS. Tel: 061-973-3604.

CONNECTING THE DATAC PANTHER PRINTER

I had considerable problems driving an EN-P 1091 or Panther printer from the QL due to a faulty Ser 1 interface on the QL. Mr Dave Ferguson, Product Manager of Datac Ltd., gave invaluable help and finally came to my house in Scotland to test my set up and diagnose the fault. Service with a Capital S! The QL has now been replaced by Sinclair, who also sent a cheque for £17 to cover the postage on three returns since June.

To help other QL owners who wish to use the DATAC printer and RS 232 S interface card, I thought you would like to have a note of the connections and Dip Switch settings that I have found to work using my replacement JM computer.

These are as follows:-

Cable.

QL COMPUTER.	CABLE COLOUR.	RS232S PLUG.
1	BLACK	7
2	WHITE	N/C
3	GREEN	3
4	BLUE	20
5	RED	6
6	ORANGE	N/C

DIP SWITCH SETTINGS

PRINTER

INTERFACE

1 ON	OFF	J101 OFF
2 ON	OFF	J102 OFF
3 OFF	OFF	J103 OFF
4 OFF	OFF	J104 OFF
5 OFF	ON	J105 a-b
6 OFF	ON	J106 -
7 ON	ON	J107 ON
8 OFF	ON	

These settings give output from Quill, graphs from Easel and listings using 'SAVE SER1'.

R.WATKINS F.P.S.,M.C.P.P.,M.I.Pharm.M.

Towards better Code

128k RAM sounds impressive; the reality for basic programs is a modest 32k. Serious programmers will find this limit significant and will need to make bytes count but even if your program is tiny by comparison and time is not of the essence it is good practice to write your code with reasonable economy in terms of memory and processing time so that it will be second nature should it become necessary.

A useful example comes from the 'calander bas' program on our LIBRARY 2 cartridge. The author is not credited but I deduce he is young, reads QL User, has had experience of another Basic but had not taken much interest in the facilities of SuperBASIC. It contains a number of spelling errors and at least two logical errors (try 1702 - funny year, all Sundays) but it has a nice display and is functional, or easily correctable to make it so.

The program has 105 lines, occupies 6 sectors on cartridge and takes 10 seconds to display the January 1985 calendar from selection of the year (18 seconds for January 2399:). It uses a couple of GO TO's: On the next page is listed an alternative coding, modified to eliminate wasteful loops and duplicate coding for hard copy. It now has 51 lines, occupies 4 sectors and takes under 2 seconds to display the January calendar for any valid year. It is more flexible in that it allows hard copy of any selected months from the screen routine and is at least equally readable. It could benefit from a few more well chosen variable names but I have tried not to depart too far from the original for ease of comparison.

The most significant change is that the original version used a loop examining each year from 1600 to the selected year to count the extra days and find the leap years. These are now calculated by direct assignments using the MOD and DIV functions. It also used a loop to print the '.' character used in the LINES procedure. This is achieved much more easily with a PRINT FILL\$ instruction and hardly justifies the continued use of a procedure. The PRINT_MONTH procedure now uses a variable for the channel so that it is equally valid for screen and printer and it calculates the print position for the first day of the month only instead of every day.

If you have the original, compare the code and if you do not immediately understand the operation of MOD and DIV read the manual and experiment with it to prove what it does. Loops have their uses but first consider the alternatives. Note that the actual value of 'leap' is not relevant except that it is only zero for non-leap years and that 'IF leap' means the same as 'IF leap < 0' but is shorter. Note also the 'end' line, number 350, which avoids throwing the user back into the operating system if he wants to quit. The boot I use is an Automenu program which displays the bas files on mdv1 on screen for the user to select any program by number to LRUN. It should be available on the next library cartridge if Rob Sherratt thinks it merits inclusion.

If you have received a reminder this is your LAST issue unless you renew your subscription

```
100 REMark ***** CALENDAR *****
110 WINDOW 512,256,0,0:INK 0:PAPER 7:MODE 256:CLS:CLEAR
120 REMark ** Get Inputs
130 PRINT '\This program can generate a calendar'
140 PRINT 'for the years 1601 to 2399'
150 PRINT '\Hard copy can be provided for any month\"
160 REPEAT get_year
170     INPUT ' which Year' ! x: x=INT(x)
180     IF x>1600 AND x<2400:EXIT get_year
190     PRINT 'Out of range !'
200 END REPEAT get_year
210 REMark calculate starting day
220 b=x-1601:c=(1+b+(b DIV 4)-(b DIV 100)+(x 2000))MOD 7
230 leap=(NOT(x MOD 4))*x MOD 100+NOT(x MOD 400)
240 REMark ** Print Calendar On Screen **
250 sc=2:CLS:CSIZE 2,1:AT 1,19:PRINT x:CSIZE 2,0
260 WINDOW£2,435,150,40,60:PAPER£2,0:CLS£2
270 WINDOW£2,435,150,35,50:PAPER£2,2:CLS£2:INK£2,0
280 FOR month=1 TO 12
290     CLS£2:READ a$,b:IF leap:IF month=2:b=29
300     PRIN_MONTH:AT 22,4
310     PRINT'F1 For Hard Copy'\ Any Other Key To Continue'
320     key=CODE(INKEY$(-1))=232:IF key:HARD_COPY
330     NEXT month:AT 22,4:CLS 3:CLS 2
340 PRINT'F5 To Quit'\Any other key for another'
350 key=CODE(INKEY$(-1))=248:IF key:LRUN mdv1_boot:ELSE RUN
360 :
370 DEFine PROCEDURE HARD_COPY
380     sc = 5 : BAUD 9600 : OPEN£5, ser 1 :PRINT_MONTH : CLOSE£5 :
sc=2
390 END DEFine HARD_COPY
-400 :
410 DEFine PROCEDURE PRINT_MONTH
420     PRINT£sc:PRINT£sc,TO INT((36-((LEN(a$)+5)))/2),a$!X
430     LINES:PRINT£sc,' SUN MON TUE WED THU FRI SAT'
440     LINES:IF c:PRINT£sc,TO(c*5),,
450     FOR day=1 TO b
460         IF day<10:PRINT£sc,' ';
470         PRINT£sc,' ';day;' ';c=c+1:IF c=7:PRINT£sc:c=0
480     NEXT day:IF c:PRINT£sc
490     LINES
500 END DEFine PRINT_MONTH
510 :
520 DEFine PROCEDURE LINES
530     PRINT£sc,FILL$('=' ,36)
540 END DEFine LINES
550 :
560 DATA ' January',31,'February',28,'March',31,'April',30
570 DATA 'May',31,'June',30,'July',31,'August',31
580 DATA 'September',30,'October',31,'November',30,'December',31
590 DEFine PROCEDURE RESAVE
600     a$='mdv1_calendar_bas':DELETE a$:SAVE a$
610 END DEFine RESAVE
```

P.S. Sorry about the £ instead of #
Anyone yet figured how to read a program into Quill?

Incidentally, many writers avoid loops when they would make the code more compact and less stringy; that's a personal view, of course. Look for instance at Vol 1 Issue 10 p 20.

Does clarity materially suffer if line 1630 reads:-

```
1630 =0:for z=1 to 3:NUMBER$(z)=RND(6)+1
```

which with the same fix at line 1670 saves six program lines and many similar changes could usefully be made to shorten that program to about half the number of lines without loss of readability? The short form of the FOR loop seems to be neglected; I think it has great merit. More compact code is much easier to debug as more of it can be seen on screen. Particularly important for writers who do not have hard copy facilities. It also makes better use of paper, we could have more articles in QUANTA for the same edition size and more programs on that expensive cartridge media. So compact programs rule O.K.

Good hacking.

John Tanner, 43 Northumbria Drive, Bristol. BS9 4HL (0272) 623401

NETWORKING

At a recent MILTON KeYnes sub-group meeting we experimented with two QLs networked together. After a lot of trial and error, we came up with the following commands which worked fine for transferring SuperBASIC programs between the two systems. The manual was not a tit of help.

net (station number)	different numbers for each station
open £3, net_n	opens a channel for station n (own station)
load neti_n1	receives a program from station n1
save neto_n2	sends a program to station n2

The program must be loaded into memory on the transmitting system before transmitting or receiving commences.

Leon Heller.

INSTALLING A CPA 80 (S) PRINTER

I recently bought a CPA 80(s) printer from Hobbyte, Arndale Centre, Luton. This printer is a development of the old Shinwa CP 80, it now sports a new badge on the front and is supplied by Micro Peripherals. The 's' indicates that it has a serial interface and therefore plugs straight into the Q.L. .

First surprise was that Uncle Clives "free gift" didn't fit properly. The plug itself fitted but the holes in the locking plate didn't line up and the screw threads didn't match up!! A cable supplied by Hobbyte (£10.00 sale or return) did fit!

One of the advantages of the CPA 80 is that the dip switches are easily accessible on the top of the machine. The instructions (a laugh a minute but still better than the Q.L. User Guide!!) tell of another 12 dip switches on the interface board. Remove cover and peer in - no sign of any switches, only strange bunches of amps and ohms which I believe are called circuit boards. Hurriedly close the cover and start to fiddle, curse, scratch head and stamp feet. Like the Q.L. before the machine refused to do anything but buzz at me!!

Next day. - Back to Hobbyte and explain the problem. Where are these switches?? One quick phone call and all the answers were at hand.

Take the back plate off. Immediately inside are two circuit boards one upside down above the other. They are held together by two screws and mounted on two white nylon posts. Remove the screws and gently prise the board up off the nylon posts. As it comes apart you see that the boards are joined together by a multi-pinned plug.

The dip switches are on the underside of the top board. They are in two blocks, one of 8 switches, the other of 4. The switches are numbered 1 to 8 and 1 to 4. They should be:

1 to 8

9 to 12

A baud rate of 2400 was recommended by the MP technician - don't ask me why - it works and as yet I have not dared to change it !! The following settings work.

1 - ON	2 - ON	3 - OFF	4 - OFF	5 - ON	6 -
ON					
7 - OFF	8 - ON	9 - OFF	10 - OFF	11 - OFF	12 -
OFF					

Although the manual says that 12 is not used it must be OFF. The switches are "on" when they are pointing towards the number, something else the book does not tell you!!

Now put the board back !! Be very careful, those pins on that plug look very fragile and on my first attempt I didn't get the plug fully home and the printer stopped working after a short while. Perhaps these jobs could be done by your retailer if you are faint hearted.

After all this I switched on and, lo and behold,

```
10 BAUD 2400
20 OPEN £3,SER1
30 LIST £3
40 CLOSE £3          WORKED.
```

As the CPA 80 is fully Epson compatible, getting Quill and Abacus to work was easy. The only things I changed on Install were the baud rate and the printer name!

I am now using several PROCedures within my own programmes to change print modes, form lengths, tab settings etc.

We are all delighted with the printer and at long last my wife and daughter have taken an interest in Quill - anyone got a spare Q.L. I can borrow ?

D.A.Bell,
Westfield House,
Swannells Wood,
Studham,
Beds.

Ringing your Secretary:

Never when **MINDER** is on. Never 12:30 to 2:30 & 5:15 to 7:15 & not later than 10:30. As I have certain projects on, I cannot chat for very long. I am always delighted to put members in touch with others and advise on topics for articles.

MILTON KEYNES LOCAL GROUP.

We meet on the first and third Sundays from 10:00 to 1:00 - 50p per morning.

SIMPLEX DATA RAM EXPANSION - ANOTHER VIEW

I have recently taken delivery of an alleged memory expansion unit for the QL produced by Simplex Data Ltd. as advertised on the back of QL User for both November and December issues. My initial reactions are that it's of great help, although I am sceptical whether it is in fact ,256k. Until I obtain a copy of QL Toolkit, I have no means of determining its size, and with Sinclair's customary speed of delivery, I doubt whether I will obtain that for at least a month.

If I use Archive then it shows a memory size of 129368 as against 12120 using "memory()", which I calculate as about 114.5K additional memory. If I use Abacus then, initially, 94K: as against 15K is shown (an Extra 79K) , whilst with Easel 125K as against 8K, is shown (an extra 117K). As can be imagined that leaves me confused as to its actual size, although I doubt whether it is 256K.

However , whether or not it is 256K, it certainly does improve the QL in the use of its existing packaged products. The extra memory for Archive is of inestimable value, whilst that for Abacus makes the spreadsheet of more practical use. I have little use for Easel and so do not comment thereon.

The main advantage, however, is with Quill. It avoids the tedious wait to overlay parts of the programme when calling in additional commands. It still purports to access "mdv1" but for parts of a second rather than several seconds when a command once loaded is accessed a second or subsequent time. Clearly, once the command is in memory, it is not overlaid by the use of another command, and this considerably speeds up the "down time". Of course access to "mdv2..." is not directly affected, although it does give the impression access is not so frequent.

Subject, therefore, to the size of the memory, it does appear that the additional memory is of advantage.

Further to my letter of 30th December, I have now had more time to assess the usefulness of the alleged 256K memory expansion from Simplex Data Ltd, and it suffers from one very serious problem. It overheats causing the display and everything else to freeze. I have only experienced this when using Quill since that is the only programme I use for a long time, and it is not until it has been running for about four hours that I have so far noticed it occurring. Nevertheless it does indicate a problem of which I believe others should be warned.

The Hon. WDR Spens,
Marsh Mills Cottage,
Over Stowey,
Bridgewater,
Somerset. TA5 1HG.

/* David has got the full 256K of RAM he paid for, but quite a lot of it has been used by QDOS, which sees how much RAM is available, and then takes some of it for buffer space. This is the reason why additional RAM seems to enhance Microdrive performance. */

PROBLEM SECTION

I have a small consumer credit business and would like to be able to use my QL to make it more efficient. I have an idea about what sort of program I need but do not possess enough knowledge to put it together.

Should anyone in the NW area with a grasp of SuperBASIC be interested I would be delighted to hear from them. I think that the right program could be commercially viable and am quite willing to listen to any financial propositions.

Thanks for Quanta, it makes good reading.

Gerald D. Dunn,
Brooklands,
14 Briars Lane,
Lathom,
Lancs. L40 5TG.

I would like to say that I have found IQLUG immensely helpful. I agree more is needed for beginners. I would like to see someone offer templates for Abacus and Archive dealing with common layouts (e.g. chequebook, savings account, tax returns, address book, recipe book, and for me, a reference list). I don't mind space given to 'deeper' stuff (architecture, 68000 machine code and so on) because it will still be there for reference if I get more interested in it at a later time, and it does no harm in the meantime. Keep up the good work. I appreciate how hard it is to do something like this and I think you are doing a fine job.

Fred Hollis.

What I would like to know is the differences between this ver AH and the new ver JM, and are there any more versions in the pipeline, and if so, will we be able to get hold of the new versions.

You have mentioned in the newsletter about a cassette interface for the QL. Would this be possible using the Spectrum as I have progressed from one of these and I would like to put it to good use.

G. Marshall,
34 Wood Street,
Skelmanthorpe,
W. Yorks.
HD8 9BN.

/x Sinclair insist that there are relatively few differences between AH and JM ROMs, and that they will not be upgrading AH machines. Members' experiences seem to bear this out. No-one, not even Sinclair, seems to know what will happen about future enhancements.

It should be possible to use the Spectrum cassette interface on the QL, by using a similar technique to the one mentioned recently for printing via the Spectrum. I think you will need the Spectrum Interface 1 so that data can be transferred using the network. x/

IQLUG NEEDS YOU!

BEGINNERS' SECTION

QUANTA Vol. 1 Iss. 11 Beginner's Section problem, SOLUTION First correct solution received from:

Eric Sargeant,
33 Breedon Street,
Long Eaton,
Nottingham.
NG10 4ES

CONGRATULATIONS!!!!!!

=====

Two possible program solutions follow.

Those provided by Eric Sargeant were different, and there are no doubt many others. The answer to the problem can be found by running the program!!

Regards, Andrew Risby.

```
95 REMark **LOGICAL SOLUTION**
100 INK 8 : CLS
105 PRINT DATES$
110 LET b=I
120 LET c=0
130 LET N=100
140 FOR chq = 1 TO 9900
150     LET N=N+1
155     LET c=c+1
160     IF c=101 THEN
161         LET c=1
162         LET 'b=b+1
163     END IF
190     IF N=(100*c+b-112)/2 THEN PRINT N
210 END FOR chq
220 PRINT DATES$
```

```
90 REMark **ALGEBRAIC SOLUTION**
92 REMark **excludes timing**
95 CLS
100 FOR a = 0 TO 99
110     FOR b = 0 TO 99
120         LET x = a +(b/100)
130         LET y = b + (a/100) - 1.12
140         IF x = y/2 THEN PRINT "£ ";x
150     END FOR b
160 END FOR a
```

Writing for beginners by the cognoscente sometimes turns out to be way beyond us, but it's often hit and miss. Occasionally some who are still beginners can impart a few flawed gems of our own finding that may prove worthy of inspection.

Beeping. The manual does not indicate that you can get a noise by typing no more than two parameters and it may not be clear that you can easily stop the damned thing with the command BEEP. So here is a very simple program to show the connection between brief commands and the noise that comes out.

```
100 CLS: PRINT " The following indicate numbers "
110 PRINT " to call up the corresponding sound "
120 PRINT " "
130 PRINT " (Press any key for the next sound,)"
140 PRINT " "
```

```
150 BEEP 1,10: PRINT " 0,10": PAUSE
160 BEEP 0,20: PRINT " 0,20": PAUSE
170 BEEP 0,30: PRINT " 0,30": PAUSE
180 BEEP 0,40: PRINT " 0,40": PAUSE
190 BEEP 0,50: PRINT " 0,50": PAUSE
200 BEEP 0,60: PRINT " 0,60": PAUSE
210 BEEP 0,70: PRINT " 0,70": PAUSE
220 BEEP 0,80: PRINT " 0,80": PAUSE
230 BEEP 0,90: PRINT " 0,90": PAUSE
240 BEEP 0,100: PRINT " 0,100": PAUSE
250 BEEP 0,110: PRINT " 0,110": PAUSE
260 BEEP 0,120: PRINT " 0,120": PAUSE
270 BEEP 0,140: PRINT " 0,140": PAUSE
280 BEEP 0,160: PRINT " 0,160": PAUSE
290 BEEP
```

Quill is sometimes so slow that we type too quickly for it and patience may be the only counsel. But if you find that a document becomes badly garbled and Quill refuses to load then there is still a way to see if anything of it remains legible. Return to SuperBASIC and use COPY mdv1_(or_2) TO scr_. That produces a most interesting display, indicating the inner workings of Quill, but it can also afford much or all of a text that is otherwise apparently irretrievable.

Windows. I'm still not completely happy with these but they became much easier once I discovered how to give myself the whole screen to play with for programs. WINDOW 512,256,0,0 may seem pretty small beer to an old hand, but with my little experience it took me hours to work out.

Two simple tips. (Are they really so easy that no one mentions them?) The method of deletion is so cumbersome and slow (the worst weakness of the QL?) that in typing SuperBASIC programs the best way for me, particularly with a long line, is simply to ignore each error, backspace and type in the correct letter(s), accumulating a load of errors at the end of the line, where they can be erased swiftly and rapidly in the usual fashion later. However, for Quill this is probably not the best way, because the cursor is so slow to respond. If you can be resolute the best thing is probably to leave all(?) errors in your document and then go back and take them out afterwards. This is because the cursor will travel much more rapidly up and down the printed lines than along them and you can often save much time by picking out the errors later.

Incidentally, SuperBASIC commands seem a good deal more powerful than those in the Psion programs. Having found that BACKUP was hard to implement and often not reliable I now go into SuperBASIC and use COPY, which works well. On Quill it took me a long time to realise that I could delete whole words by holding down Shift and Ctrl and pressing the l. and r. Arrows.

Finally, I have lots of little programs, mainly for learning how to do things. The dir list overflows and is hard to read (HELP!) and the saved Programs are in no sort of order. So as far as possible (except for BACKUPS or COPYs) I try to put the Archive dbfiles on one cartridge, the SuperBASIC programs on another and the Quill docs on a third. Since I hardly use the other two Psion packages yet they don't complicate things much.

If any awful warnings are needed I could say one or two things about Olivetti...

John Roberts,
19 White Horses Way, Littlehampton, West Sussex. BN17 6NH.

```
10 REMark Planets_bas: Graphics Program using Point, Circle & Arc
20 REMark Fill Commands to draw coloured circles & arcs
30 REMark Norman Larkin, 9 Cresswell Court, Hartlepool, Cleveland.
40 REMark Tel 0429 74250
45 :
50 jupiter
60 saturn
65 :
70 DEFine PROCEDURE stars
80     PAPER 0
90     CLS
100    FOR i = 1 TO 100
110        INK RND(1 TO 7),RND(1 TO 7)
120        POINT RND(170),RND(100)
130    NEXT i
140 END DEFine stars
145 :
150 DEFine PROCEDURE saturn
160     stars
170     FILL 1
180     INK 5,6
190     ARC 50,50 TO 100,50,PI
200     FILL 0
210     r=30
220     FOR j = 1 TO 3
230         FOR i = 0 TO 5
240             INK i+1,j
250             CIRCLE 75,50,r,.2,PI/2
260             r=r+2
270         NEXT i
280     NEXT j
290     FILL 1
300     INK 5,6
310     ARC 100,46 TO 50,46,PI
320     FILL 0
330     CSIZE 3,1
340     AT 0,3:PRINT"SATURN"
350 END DEFine saturn
355 :
360 DEFine PROCEDURE jupiter
370     stars
380     CIRCLE 50,50,30
390     FILL 1
400     FOR i = 80 TO 20 STEP -3
410         INK RND(1 TO 7),RND(1 TO 7)
420         r=SQRT(30^2-(i-50)^2)
430         CIRCLE 50,i,r,.2,PI/2
440     NEXT i
450     FILL 1
460     INK 2,0
470     CIRCLE 70,40,4,.85,PI/8
480     FILL 0
490     INK 7
500     CSIZE 3,1:AT 0,7:PRINT"JUPITER"
510     PAUSE 200
520 END DEFine jupiter
```

```
50 REMark *** BEGINNERS' SECTION ***
60 REMark =====
70 REMark The following program (starting at line 100) will
80 REMark reset a colour monitor screen to the same white &
90 REMark red windows that appear when the system is first
91 REMark switched on. This is particularly useful as an
92 REMark addition to other programs which use other window
93 REMark layouts, to avoid the need to 'reset' after using
94 REMark those programs
100 REMark **RESET PROG**
110 WINDOW£0,512,56,0,200,PAPER£0,0:INK£0,4:CLS£0
120 WINDOW£1,256,200,256,0:PAPER£1,2:INK£1,7:BORDER£1,1,0,7:CLS£1
130 WINDOW£2,256,200,0,0:PAPER£2,7:INK£2,2:BORDER£2,1,0,7:CLS£2
140 NEW
```

NOTE: for £ read #

Regards, Andrew Risby,
7 Combers, Balcombe, West Sussex.

PATCH PROGRAM FOR TRANSFERRING THE METACOMCO EDITOR ONTO DISK

It is possible to transfer Metacomco's software onto a floppy disk (see appendix in user manual on installation). However to transfer the screen editor ED Version 1.6 you must also run the following patch program. (For versions later than 1.6 the patch is not necessary).

Place the Microdrive cartridge containing the editor in mdv1. Place a blank formatted cartridge in mdv2. Type the following program:

```
10 LET C = RESPR(21348)
20 LBYTES MDV1_ED,C
30 POKE(806+C),96
40 SEXEC MDV2_ED,21348,4000
```

Run the program. The version of the screen editor on mdv2 can now be transferred to floppy disk.

Metacomco, January 1985.

/x This technique only seems to work if the editor is on a Microdrive cartridge, it doesn't work properly if the editor is already on disk, for some reason. X/

ABACUS (1.02)

Herewith the story of a problem with Abacus.

My application involved the input of a column of readings and then applying correction factors to them to produce standard values. This process has to be repeated at intervals, each new set of values being compared with the old set (each with each).

Problem. Having input the first set of readings using ASKN(), how to delete the ASKN in order to input a second set, or alternatively, to move the standard values to a new location (in which case the formula producing them must first be deleted in order not to corrupt the values) and use the same ASKN column for the second set of readings.

I could find no way of deleting either the ASKN function or a formula from an entire column except by using the AMEND command on each cell in turn, - a procedure so tedious that it just was not on.

So I wrote to Psion for advice. Ten Days later a form letter stating 'enclosed is some documentation which resolves your problem' arrived. This did nothing of the sort but told me 'you cannot cancel the formula and expect the numerical value to remain intact' and told me to use the AMEND command on a cell by cell basis - which my request for assistance had already explained was too tedious a process.

Thrown back on my own resources I next tried deleting the formula and inserting COL=CELL*1. This worked on the first cell in the column but the rest turned to zeros.

Finally I remembered reading somewhere or other that if the formula of a single cell were changed, all cells or originally calculated by that formula would be changed. So I amended the formula of one cell only to CELL*1 and, presto, it works. The VALUES column can be moved around without distortion 'and the ASKN column ceased to ASK.

Hope this may be of use to some of our members, and an indication of the worth (£35's worth) of the QLUB!

Capt. ED Fieldson,
'Miraflores',
Troutstream Way,
Loudwater,
Rickmansworth.
Herts. WD3 4LA.

REVIEW OF CST FLOPPY DISK INTERFACE

I have been using one of CST's floppy disk interfaces for about a month. Since they should be on sale by the time this issue of Quanta goes out, a review of the this exciting peripheral should be of interest.

The interface plugs into the bus expansion socket on the left of the machine, and is quite unobtrusive, in that the width of the machine is increased by a mere 50 mm or so. The projecting end is encased in a black plastic box, which matches the QL, with a 34-way male connector. The disk drives are connected to this connector by 34-way ribbon cable, in the usual manner. One or two drives may be attached, and they may be 40- or 80-track, single or double-sided, 3', 3.5' or 5.25' drives. Two dissimilar drives may be used. Since the interface uses double-density recording, storage capacities per drive range from 180K for a single-sided, 40-track drive, up to 720K for a double-sided, 80-track unit, giving a maximum capacity of nearly 1.5Mb with a pair of 80-track., double-sided drives!

All software needed for disk operation is contained on an EPROM in the interface, and was written by Tony Tebby. Quite a lot of room was left and Tony used this to provide several extensions to QDOS, giving direct (random) file access on both floppies and Microdrives, and lots of other useful features. The software is very clever, and automatically deals with the different types of drive. The optimum stepping rate for the drive is determined by the software, unlike most other systems I have used. Tony tells me that his software enables 40-track, double-sided, and 80-track, single- and double-sided drives to read 40-track, single sided disks. so that a common format for software distribution may be used. I haven't

tried this feature, however. as I don't have a single-sided, 40-track drive at the moment.

27 pages of excellent documentation are provided.

I am using the interface with a double-sided 40-track TEC, drive, with a home-made power supply to keep the cost down, and feel that this is probably the best combination. Single drive operation is perfectly feasible, especially if one has the forthcoming QLkit, as it comes with a backup utility which enables an entire disk to be copied on, one drive, with prompts to swap the original and backup disks when memory is full.

Disk operation is very easy, since the disks are treated just like any other device by QDOS. Disks have to be formatted before use. and this is quite rapid. Once formatted, all the Microdrive commands work. except that one uses 'fip' instead of 'mdv'. For instance, to open a disk file called 'fred' and write a string to it. one types:

```
OPEN #3,'fip1_fred'  
PRINT #3,'This is a string"  
CLOSE #3
```

On average. I find that disk operations are about three times faster than with the Microdrives. The first interface I was given. a pre-production unit, was faulty, but the second one has behaved perfectly, with a lot of use, over the last month.

Most of the software I have runs without any problems from disk, including the Psion packages and Metacomco's development software (Assembler, BCPL and LISP), although I did have to patch some of it by changing all occurrences of 'mdv' to 'fip'. I expect all new releases of software to be fully compatible with Microdrives and disks. Version 2 of the Psion packages run perfectly from disk with no patching needed, I am told.

The interfaces. together with a 40-track single-sided drive will be available from Boots and Smiths for £250 although supplies will be limited for two months or so, as CST are only producing 300 interfaces a month, initially. It might be a couple of months before the interface is available separately, and the priced will be £150, but this will mean that users who already have disks on their TRS-80, for instance, can use them on the QL. I lent CST one of my old Tandy (TEAC) drives. and they tell me that it works perfectly, although I haven't tried it myself as I don't fancy a trip to Cambridge with the grotty weather we've been having lately.

Summing up, I feel that this is perhaps the most significant development yet for the QL, as it transforms it into a perfectly viable small business machine. Having used disks on the QL, there is no way I would go back to Microdrives. CST and Tony Tebby have done an excellent job.

Leon Heller

LONDON ONE-DAY WORKSHOP - DISKS ON THE QL

We are organising a one-day workshop on Sunday, 27 January in London, devoted to disk drives, at which we will have two QLs. fitted with disks, for participants to use. Members in the London area will already have received details of the meeting. Only 30 places are available, so that everyone can have some 'hands-on' experience. Please give Brian a ring if you would like to attend. The cost will be £5, including coffee and biscuits, but excluding lunch.

Leon Heller

SIMPLE SAVING OF PROGRAMS

The following may be of use to members. Certainly I've found it handy to precede any long program by the following lines:

```
1 DEF PROC psave
2   DELETE mdv1_progame:SAVE mdv1_progame
3   DELETE mdv2_progame:SAVE mdv2_progame
4 END.DEFpsave
```

entering psave ENTER gets rid of old programs and saves the new one any time one knocks off, and requires such a small entry that its convenience quite outweighs the effort of inserting it as a routine in every program.

Wil Jackson

SWINDON WORKSHOP

The Swindon weekend workshop last November was a great success, and we are holding another one on 1/2/3 March. You should already have received a booking form, with details of the programme. The AGM will be held during the workshop, on Sunday afternoon. Do come along if you can - it promises to be a very interesting weekend.

Loon_Heller

A COMPARISON OF THE 'QL ADVANCED USER GUIDE' BY ADRIAN DICKENS AND 'QL ASSEMBLY LANGUAGE PROGRAMMING' BY COLIN OPIE

I keep getting asked about books on assembly language programming and QDOS, so a joint review of the two main contenders should be of interest.

'QL Advanced User Guide', published by Adder Publishing

This was the first book on the inner workings of the QL to come out. Following a software oriented introduction to the MC68008 microprocessor (a good reference book on programming the MC68000 would also be needed), an overview of QDOS is provided. A fairly painless way of experimenting with QDOS without having to get into assembly language programming, using a SuperBASIC program called Experimentor follows. Now comes the heavy stuff, in the form of detailed descriptions of all the QDOS traps and vectored utilities. One really needs to get into assembly language to make use of all the information provided. A chapter on device drivers comes next, with some very interesting information about Microdrive operation. A parallel printer interface circuit is included in this chapter, with driver software. The last chapter deals with SuperBASIC, and how to link additional machine language procedures into it, to extend the language. A few examples are provided, throughout the book, which should enable the reader with some experience of assembly language with another processor to get to grips with QDOS, and be writing his or her own routines fairly quickly. The book has a good index, and is well produced, apart from a few irritating typos.

'QL Assembly Language programming', published by McGraw-Hill (UK) Ltd.

Colin Opie's book follows the same general format as the other book, except that it contains nothing like the other book's Experimentor Program. I did not like the way the QDOS functions were presented, in that the trap number was not reproduced at the top of each page as in Dickens' book, which means a search back through the chapter to find the trap number for a particular QDOS function. The book appears to be pitched at a lower level of reader than Dickens', with very little information about Microdrive operation, for instance. The book does contain some excellent examples, written by the ubiquitous Tony Tebby.

The book is very poorly produced, and appears to have been printed directly from the output from a daisy wheel printer. I thought this seemed odd, since McGraw-Hill are one of the world's most prestigious publishing companies, until I noticed that the publisher is McGraw-Hill (UK) Ltd. Perhaps they have different standards. The index is woefully inadequate, consisting of about one and a half pages.

Another problem with the book is the somewhat non-standard assembly language used in the examples which means that the reader with one of the Motorola compatible assemblers, especially if he or she is a beginner will encounter some problems in getting the examples to work. Perhaps McGraw-Hill are trying to make sure readers only use their editor/assembler package.

Which do I recommend? I much prefer the Adder publication - it is properly typeset, contains more information, and has an excellent index. I use it all the time. Opie's book does have rather better and more examples, however. Both books cost £12.95, I believe. Sinclair are supposed to be bringing out the definitive work on QDOS any day now, I wonder how it will compare with these two books?

Leon Heller

LISTING CONVENTIONS,

It seems to me that once a procedure or function has been defined in SuperBASIC, then it becomes a logical extension of the language and should be treated as a keyword and thus called in upper-case. Yet nearly all listings persist in using lower-case for this purpose. What do members think?

Another point. Because, in listings they can so easily be Mistaken for 1s, can't we ban the use of I,j,l,i as variables?

Capt. ED Fieldson,
'Miraflores',
Troutstream Way,
Loudwater,
Rickmansworth,
Herts. W03 4LA.

REVIEW OF ADDER EDITOR/ASSEMBLER

Adder Publishing, to go with their 'QL Advanced User Guide book, by Adrian Dickens, are advertising an Editor/Assembler. Adder have given me a review copy, which I have checked out.

The assembler comes on a Microdrive cartridge, containing three file's: asm, asmhelp and asmtxt. Documentation consists of a 35 page A5 booklet.

This package is unusual in that the editor and assembler are combined. That is, the user may write a program using the editor, and then assemble the program, without having to leave the editor and load the assembler. The program may also be tested without leaving the system, since the processor registers may be examined and modified before and after running the program. This approach means that program development is extremely rapid compared to the more traditional type of assembler, such as Metacomco's. On the other hand, it means that only relatively small files may be dealt with, and if a program is tested without saving the source code firsts there is the danger that it might 'run amok,' and wipe out the whole system, necessitating a reset. However, large programs can be handled, since the assembler supports an included file facility.

The editor/assembler is loaded by typing `exec_w mdv1_asm`. The program takes a few seconds to initialise, and then five different windows are displayed. A command windows for entering commands, a text windows used by the editor, a line number display, used by the editor and assembler, a filename display, and a memory free display. A file called `asmtxt` will always be loaded, if it is on `mdv1`. If no such file is present: it will be created. The `asmtxt` file supplied is a very simple program to multiply registers D1 and D2. When the system initialises, the `asmtxt` file is displayed, and the user is in command' mode. Whilst in command mode, the following functions are available:

- E - edit current text
- A - assemble current text
- D - dump memory, display and modify registers
- B - set baud rate
- F - enter new file name
- H - help (displays commands)
- L - generate assembly listing
- N - new name for current text
- O - select new output stream
- P - print a value (calculate expression or symbol in program)
- Q - quit system
- R - run object code
- 'S - save current object code to file
- T - type current program on screen
- U - update memory/registers
- W - write assembled program to file
- ? - same as H
- 4 - change screen to four colour mode
- 8 - change screen to eight colour mode

Having all these commands available at the press of a single key makes the whole system extremely fast and very easy to use. The 'help' facility is a nice touch, and loads in the text file 'asmhelp', displaying it in the main window.

The editor is of the full-screen variety, and is very fast in operation. All of the usual features are provided, including 'cut and paste' operations. An unusual feature is that when the assembler has detected errors, and the editor is entered to correct these errors, the editor 'remembers' where the errors were, and allows the user to step through the text with the F2 key - the cursor stops on the offending line - and correct each error in turn. This is a very nice feature.

The assembler is very comprehensive, and appears to be compatible with the Motorola standard. Never having used a Motorola assembler, I cannot swear to it, however. Symbols may be of any length, and may include dots, underscores and digits. It allows the use of generic instructions. For example, if ADD is used, the assembler automatically chooses the correct form (ADDA, ADD or ADDI). ADDQ has to be stated explicitly, however, and the actual instruction used is not included in the listing file, unlike a cross-assembler I use which does this. Macros may be used, a facility I find very useful with the 68000/8, since code tends to be a bit verbose, and the use of macros can save a lot of typing and make programs much easier to follow. Symbol names may be allocated to registers and to any addressing mode - this is rather unusual. Conditional assembly is permitted, although the documentation states that this package is intended for the writing of relatively small programs (it couldn't handle the source code for my monitor, for instance), large programs can be handled by splitting the source up into separate files, and using the 'GET' directive to include the file during assembly. Using the 'DISCARD' directive, symbols may be deleted from the symbol table, so large programs are quite feasible, if a little awkward to handle. A symbol table is produced, unlike some of the other QL assemblers. Very informative error messages are given, and some useful hints on how to eliminate errors are given in the manual. The only omission seemed to be the XREF and XDEF directives to allow the use of the Sinclair linker when it appears. It should be quite easy for Adder to incorporate this facility, however. It is a very nice assembler on the whole.

The facility to examine and change registers, and dump memory, is referred to as a debugger, but a true debugger needs many other facilities, such as the ability to trace program execution and single step through a program. However, the facilities provided are very useful, especially for a beginner, who can see exactly what is going on when two registers are added, for instance.

The P command is very interesting. It is capable of evaluating some quite complex expressions. For instance, typing P, followed by $4E*5/(3*5)$ gave the result 1A. I suppose there is a limit on the complexity of the expressions that can be handled, but none was stated in the documentation.

Overall, I like this package. It is very competitively priced at £30 Plus VAT, and it is probably the best editor/assembler going for a beginner, or the experienced user who will only be dealing with relatively small programs. It is the most 'user-friendly' editor/assembler I've ever used! I feel that a proper example program should have been provided on the cartridge, or printed in the manual, but users will probably have one of the books on QDOS, anyway, which contain several examples.

Leon Heller

NEW LIBRARIAN WANTED

Rob Sherr:att wishes to resign from the post of software librarian. Would any member willing to act as software librarian please get in touch with me. Copying the cartridges for members is done, by the sub-librarians. The librarian's task is to administer the library system, making sure the sub-librarians have up-to-date copies of the library, and maintaining the library list.

Z80 ADD-ON, PLUS DISKS

PCML Ltd., have announced that they will shortly be marketing a Z80, add-on processor for the QL, with its own 64K of RAM, and running- CP/M. The package will include a disk interface, and two parallel I/O ports. They will also be producing Memory expansion modules. PCML hope to be at the Swindon Workshop.

METACOMCO LINKER

I have just received a beta test copy of Metacomco's linker for use with their assembly language development system. External references are identified to the assembler using the XREF directive, and XDEF is used to define labels for use as an external entry point, in a subroutine library, for instance. This is a very useful addition to the growing list of QL software, as it makes it much easier to develop large programs. Moreover, subroutine libraries for different applications may be distributed in binary form via our software library, for instance.

ZX MICROFAIR

The next ZX Microfair takes place on Saturday, February 9th at Alexandra Palace. IQLUG will be there, and we need one or two People to help on the stand. Please give me or Brian a ring if you can make yourself available.

Leon Heller

REINSTATED LIBRARIANS

Gary Williams, 18 Ilmington Road, Kenton, Harrow.
01-907-2360 Also m/code tutor.

Mike Finlay, Chankly Bore, 15 Amity Road, Reading,
Berks. Tel: Reading 62624.

Chris Cain 0703-585494

TUTORS

Archive - Chas Dillon 0827-897343

General - Mr Henson 01-373-4647 also willing to assist in the West London area.

New Librarian
Andrew Atton, 57 Nigel Avenue, Northfield,
Birmingham 021-477-4618

QL Library Voucher Volume 1 Issue 12. Independent Q.L. Users Group 24 Oxford Street, Stony Stratford, Milton Keynes, MK11 1JU Tel: 0908-564271

AT LAST A DISC INTERFACE FOR THE SINCLAIR QL

The CST/Micromate disc interface supports double sided, double density 40 or 80 track 3.5" or 5.25" drives. which with the Sinclair defined format gives up to 720k of formatted file space per disc. See Leon Heller's review in QUANTA issue 12.

The disc interface, plugs into the QL expansion bus, is housed in a stylish black case, and connects to the drives with a 26 way ribbon cable. 3.5" and 5.25" drives are available, and come cased with their own power supply, and all necessary cables.

Driving software written by Tony Tebby (author of QDOS) is held on the interface card in ROM. When the computer is switched on, the driving software is automatically linked into QDOS making the disc-drives directly accessible to SuperBASIC and all other software, as if they were Microdrives but called flp1_ instead of mdv1_. In addition, a number of extra procedures are added to basic, allowing random file access and several other features.

	single drive	dual drive
3.5" or 5.25" 180K formatted	£309	£469
3.5" or 5.25" 360K formatted	£346	£525
3.5" or 5.25" 720K formatted	£377	£584

Pack of 10 5.25" discs in plastic library case £29-95 including postage and VAT.

DON'T DELAY - initial supplies are limited and orders will be filled on a first come first served basis. Prices include one interface card with on board driving software, cased disc drive, power supply, all cables, extensive typeset manual, VAT and delivery. Just plug together and go. * 3.5" drives available in February.

OTHER, VERY SPECIAL QL BARGAINS

SPECIAL PRINTER OFFER - STOCK CLEARANCE SALE -

The Star Delta 10 is it sophisticated printer featuring condensed, normal, enlarged, double, emphasised and italic printing. It has underlining, super + subscripts and many other features including quad density graphics. It has both, parallel and serial interfaces and an 8K buffer as standard. We have a limited number for This offer, each comes with 12 month warranty, free dust cover, free ribbon, and a free QL Toolkit on Microdrive. All for only £299. Including VAT. And Delivery if you order enclosing this advertisement

MICROVITEC CUB COLOUR MONITOR £265. This monitor is supplied with a cable for the QL. It was specially designed for use with the QL, and has a 14" screen with a resolution of 653(H)x585(V) with 18MHz bandwidth. It comes in a stylish black, plastic case.

QL TOOLKIT ON MICRODRIVE £14.95.The Toolkit comes with a comprehensive 13 page manual explaining the many commands apparently added to SuperBASIC. It Includes memory tabulation in hexadecimal and ASCII, memory modify in hex, decimal, octal, ASCII in bytes or words. It has a comprehensive find command allowing searches for a sequence specified in either hex or ASCII which may include 'wild' values. Simple and intelligent copy commands allow movement and fill of memory. The ability to divert output to a printer is also provided, along with commands to simplify setting of the internal clock and many other features.

QL CENTRONICS PRINTER INTERFACE for only £38

This interface from Miracle Systems, plugs into the QL and all printers with a centronics compatible interface. Just plug in and go - needs no extra cables or software - compatible with QL Psion packages.

MICRODRIVE CARTRIDGE 4 PACKS £19 Each pack

Contains four QL Microdrive cartridges in a sleek library wallet as supplied with the QL.

ALL PRICES INCLUDE VAT AND DELIVERY



(0270) 582301

57 Repton Drive
Haslington
CREME DM1 ISA

Please send me (BLOCK CAPS):

I enclose a cheque for £ _____

NAME: _____

ADDRESS: _____